

IN THE CLAIMS:

Please cancel Claims 1-25, and add new Claims 26-50:

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--26. A display device with touch sensor comprising:

- (a) a transparent cover plate,
- (b) a transparent support plate and at least one photodetector that is mounted on the support plate and that has a photosensitive solid angle range so that the support plate lies in the photosensitive solid angle range,
- (c) an electrochromic cell or a liquid crystal cell located between the transparent cover plate and the transparent support plate,
- (d) a radiation source radiation source arranged on at least one end face of the transparent cover plate so that light of the radiation source can enter and illuminate the cover plate.

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27. The display device according to Claim 26, wherein the cover plate and the support plate are joined together by a ring seal to form a cell, and an electrochromic medium is located in the cell volume, and the plates are provided with a transparent electrically conductive coating on their sides facing the electrochromic medium.

28. The display device according to Claim 26, wherein the liquid crystal cell comprises a transparent top plate and a transparent bottom plate that are joined together by a ring seal and between in which the liquid crystals are located, the sides of the plates, which face one another is provided with a transparent electrically conductive coating, and with an orienting layer, and the sides of the plates that are remote from one another is provided with a polarization film.

29. The display device according to Claim 26, wherein the electrochromic cell or the liquid crystal cell has a coating on the bottom plate that predominantly reflects visible light while it is predominantly transparent to the light emitted by the radiation source.

30. The display device according to Claim 26, wherein the electrochromic cell or the liquid crystal cell has a coating on the bottom plate that optionally contains a location transparent to the light from the radiation source at the center of the photosensitive solid angle range of the photodetector.

31. The display device according to Claim 26, wherein the electrochromic cell or the liquid crystal cell has a semi-transmissive and semireflecting coating on the bottom plate.

32. The display device according to one Claim 28, wherein the electrochromic medium or the liquid crystal medium is two-dimensionally illuminated from the side facing the support plate.

33. The display device according to Claim 32, wherein (i) the two-dimensional illumination is carried out through an optically transparent grid plate that is arranged between the bottom plate and the support plate, (ii) a light source is arranged on at least one of the end faces of the grid plate and the grid plate having, on the side remote from the support plate, an optically refractive grid like surface structure for positionally metered emergence of light from the interior of the plate, and (iii) a scattering layer serving as an illumination surface is arranged on or over this side.

34. The display device according to Claim 33, wherein the grid density of the surface structure of the grid plate becomes greater with increasing distance from the light source.

35. The display device according to Claim 33, wherein the grid plate is identical to the support plate or to the bottom plate of the electrochromic cell or of the liquid crystal cell.

36. The display device according to Claim 26, wherein the cover plate has a thickness of at least 0.05 mm.

37. The display device according to Claim 26, wherein the cover plate has a refractive index of at least 1.5.

38. The display device according to Claim 26, wherein an intermediate layer is located between the top plate of the electrochromic cell or of the liquid crystal cell and the cover plate.

39. ~~The display device according to Claim 38, wherein the intermediate layer has a refractive index that is less than the refractive index of the cover plate~~

40. The display device according to Claim 38, wherein the intermediate layer comprises air or LTV radiation-polymerizable mixtures of polyfunctional (meth)acrylic acid derivatives, monofunctional (meth)acrylates or suitable photoinitiators, or of solid materials produced using a sol-gel process and having a porosity of more than 50% based on silicates, aluminates and other binary or ternary systems.

41. The display device according to Claim 26, wherein the bottom plate of the electrochromic cell or of the liquid crystal cell is identical to the support plate and/or the top plate is identical to the cover plate.

42. The display device according to Claim 26, wherein the radiation source has an emission maximum at a wavelength of more than 680 nm.

43. The display device according to Claim 26, wherein the end face illuminated by the radiation source is roughened so as to be weakly scattering.

44. The display device according to one Claim 26, wherein at least one and at most three end faces of the cover plate are coated with an optically reflecting material.

45. The display device according to Claim 44, wherein the optically reflecting material is gold, silver, copper, nickel or aluminum, and mixtures thereof, and the layers are produced by evaporation coating, sputtering, CVD or adhesive bonding of metal-coated films.

46. The display device according to Claim 26, wherein a plurality of photo-detectors are fitted on the support plate, a specific region of the cover plate, in which a region is uniquely assigned to the photodetector, lying in the photosensitive solid angle range of each photodetector.

47. The display device according to Claim 26, wherein a unit for processing the electrical signal is connected downstream of each photodetector.

48. A method comprising touch recognizing a display device that includes:

(a) ~~a transparent cover plate lying on a photosensitive solid angle range,~~

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(b) a transparent support plate and at least one photodetector that is mounted on the support plate and that has a photosensitive solid angle range so that the support plate lies in the photosensitive solid angle range,

(c) an electrochromic cell or a liquid crystal cell located between the transparent cover plate and the transparent support plate,

(d) a radiation source radiation source arranged on at least one end face of the transparent cover plate so that light of the radiation source can enter and illuminate the cover plate,

wherein radiation from the radiation source periodically varies with time at the frequency, and the electric signal from the photodetector is further processed so that predominantly only that part of the signal which likewise varies periodically with time and approximately varies at the same frequency as the radiation power from the radiation source is evaluated.

49. The method according to Claim 48, wherein the relative width of the frequency band accepted during the further processing in the signal from the photodetector around the frequency is less than 0.1.

50. The method according to Claim 48, wherein the touch sensor can be switched off fully or for a limited time and, after a predetermined time, switches itself on again or can be switched on again by a specific signal sequence--